



Nutrigenomics

Cardiovascular Risk Stratification

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M Δ N Δ © G E N E
INNOVATIVE LIFESTYLE GENOMICS

HUMILITY



Cardiovascular Health

A litmus test of overall health

INFLAMMATION

DETOXIFICATION



DIET AND LIPIDS

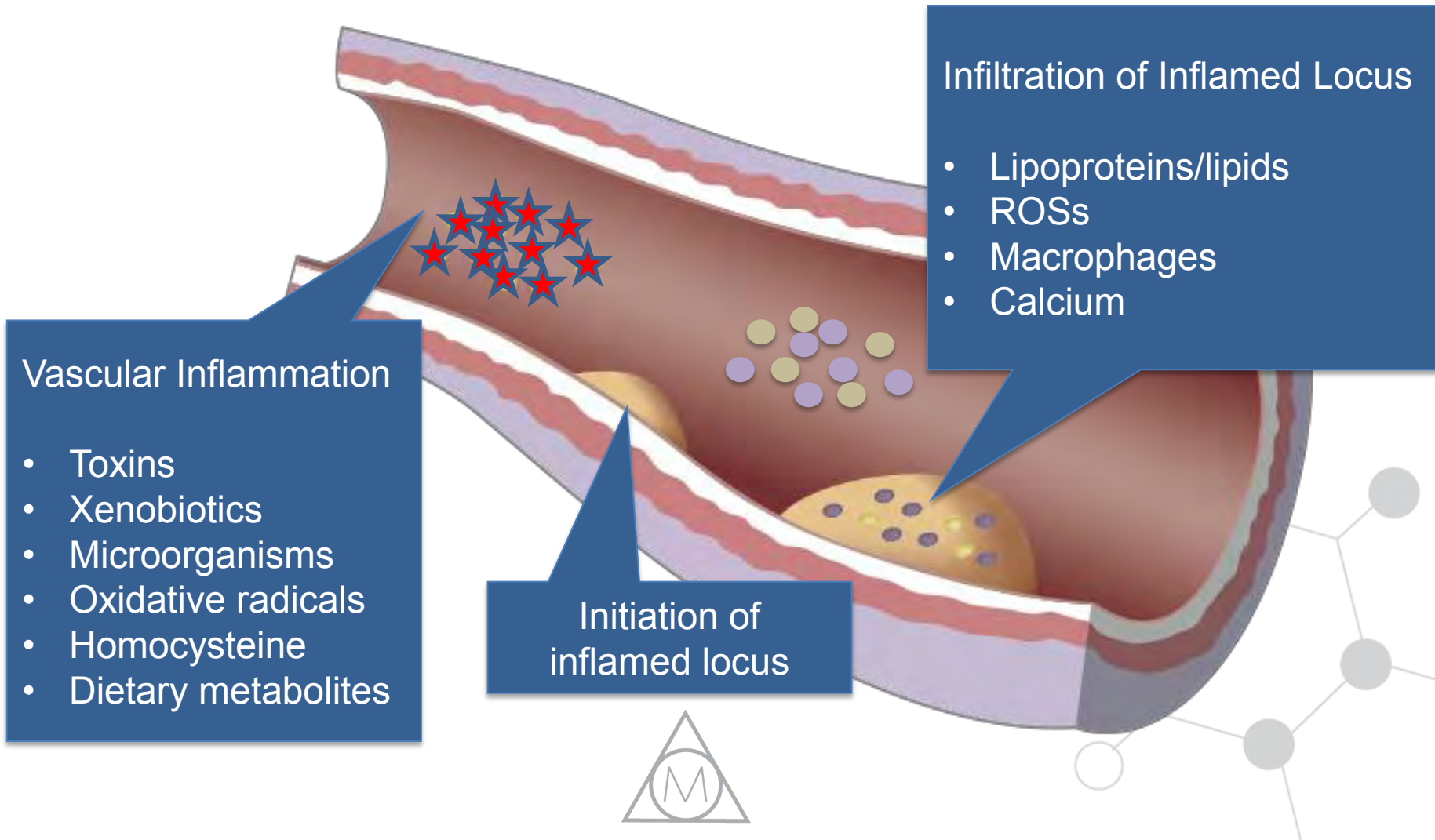
OXIDATION

EXERCISE



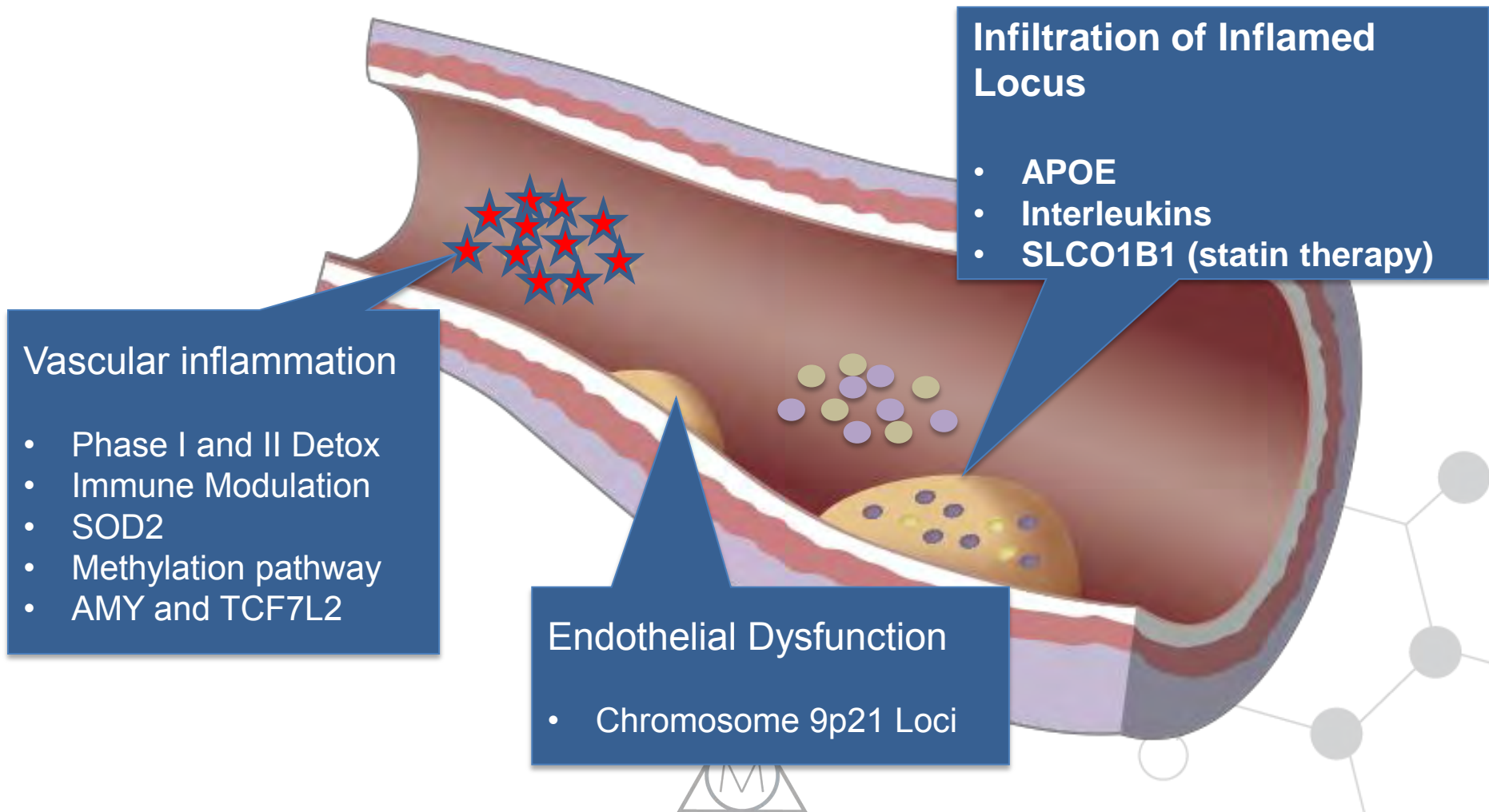
Vascular Inflammation

The Genesis of CVD



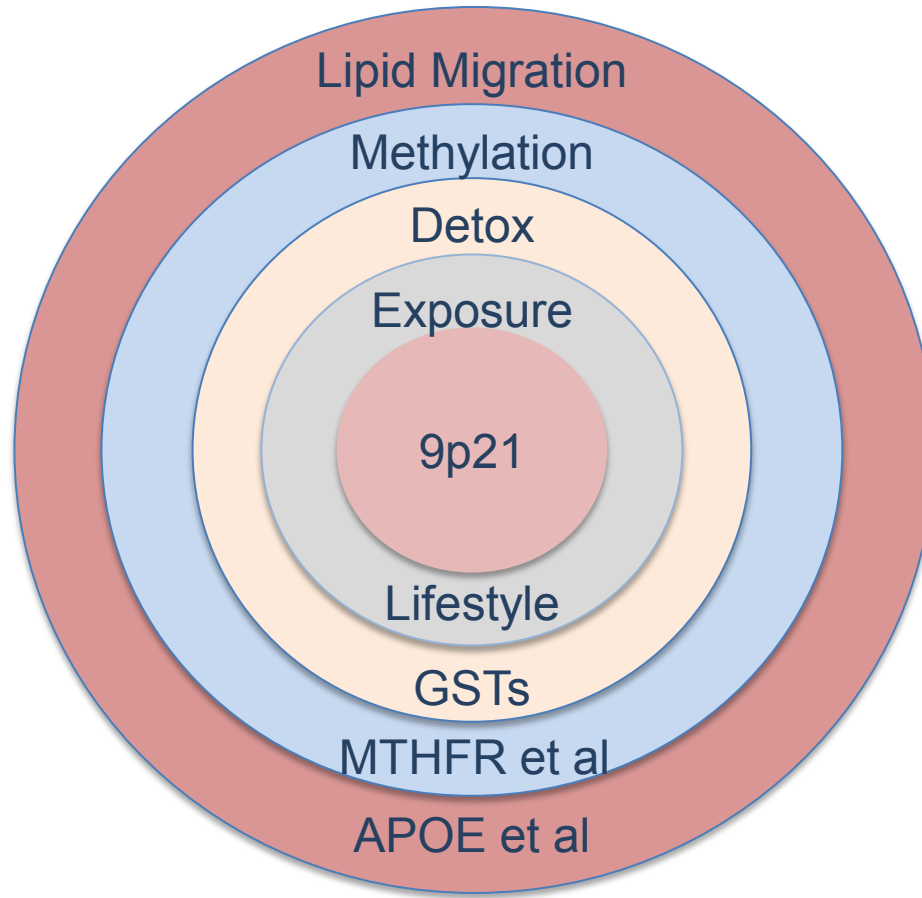
Vascular Inflammation

A behind the scenes genomic perspective



Cardiovascular Health

A Functional Perspective

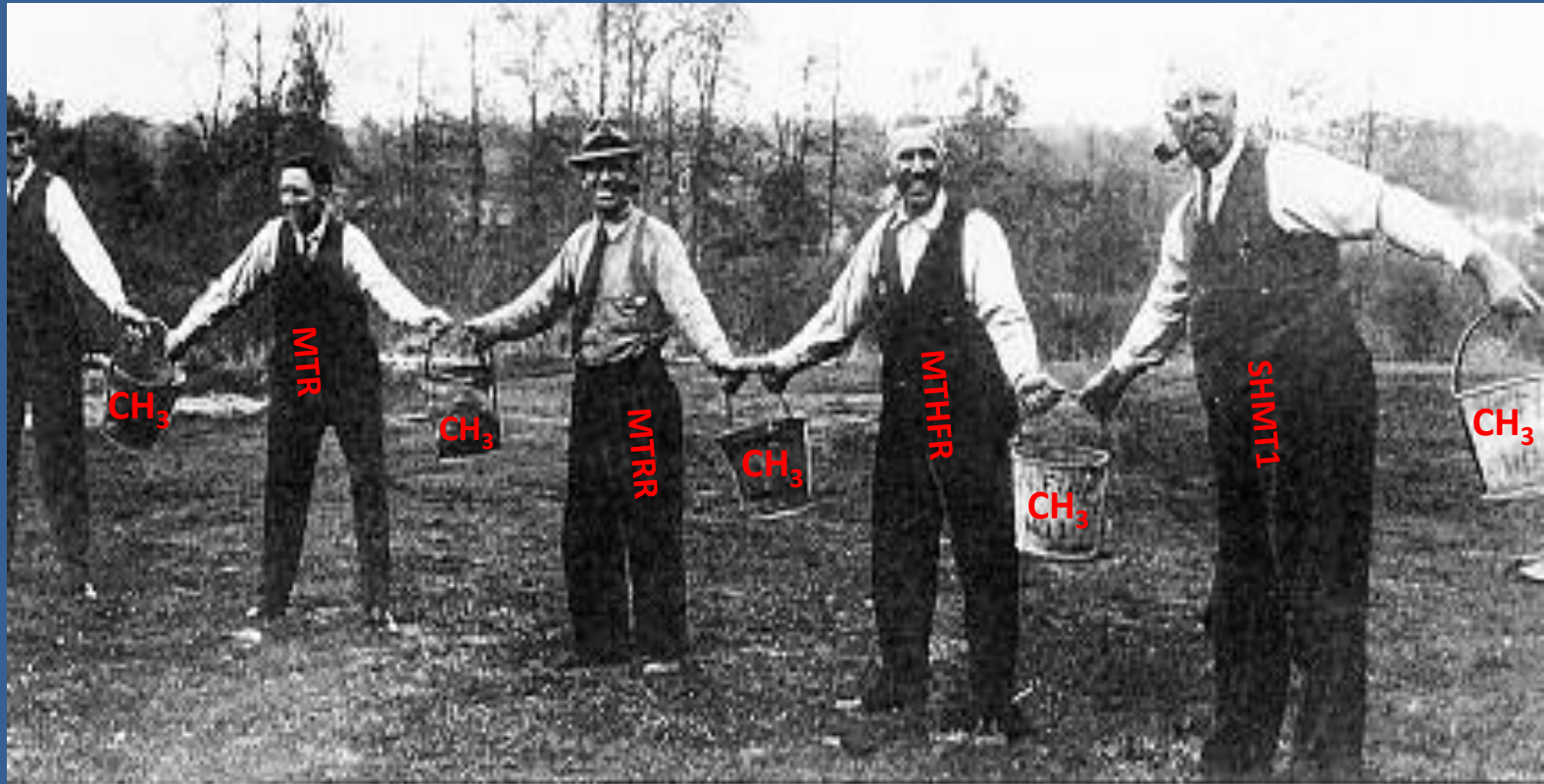


Methylation Pathway

Putting the 'heat' out with $-CH_3$

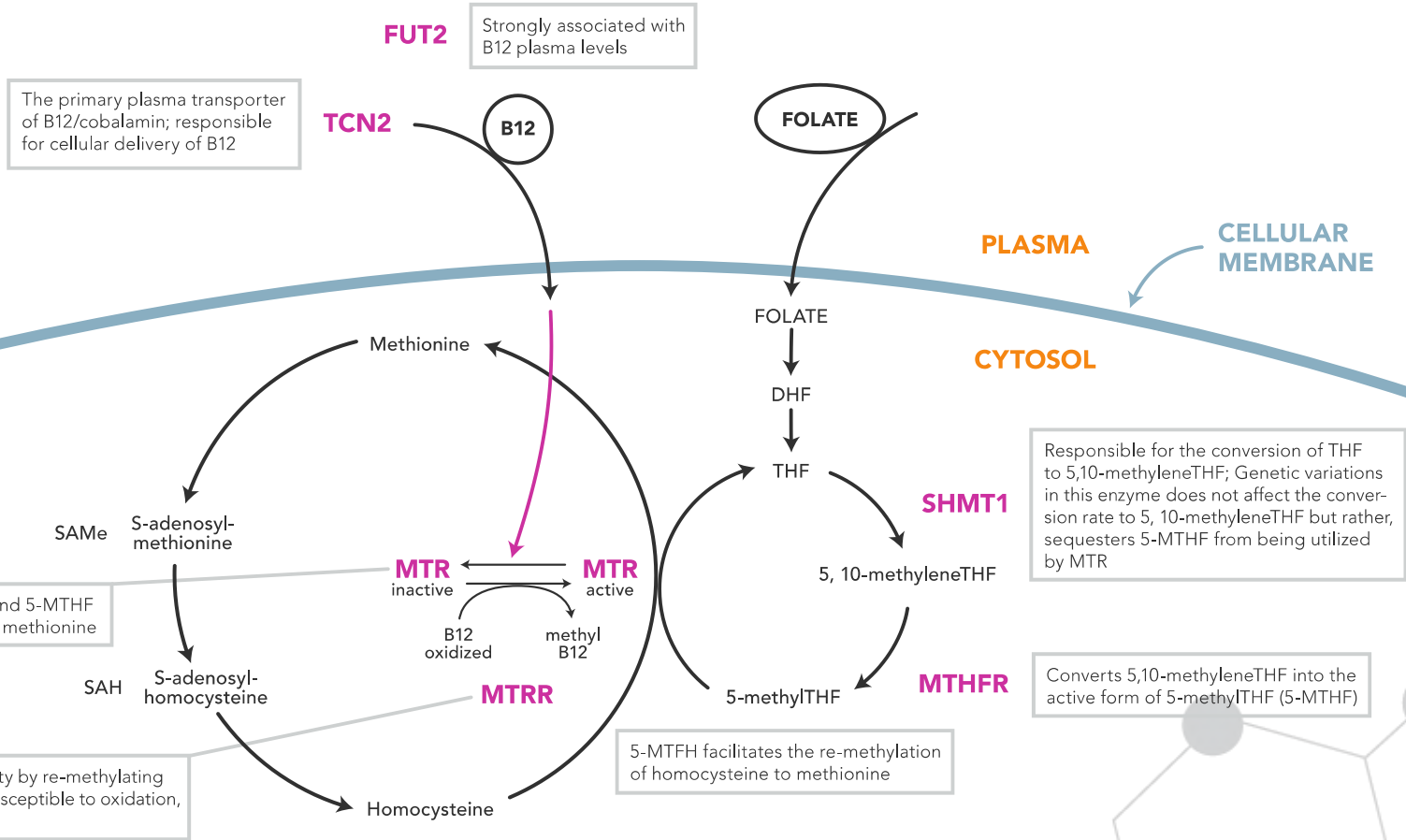
First things first...

Methylation does not start, nor stop, with MTHFR!



Methylation pathway

So that's what those vitamin B's were for...

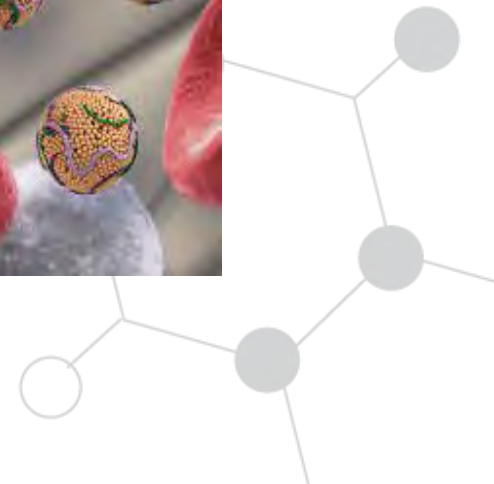
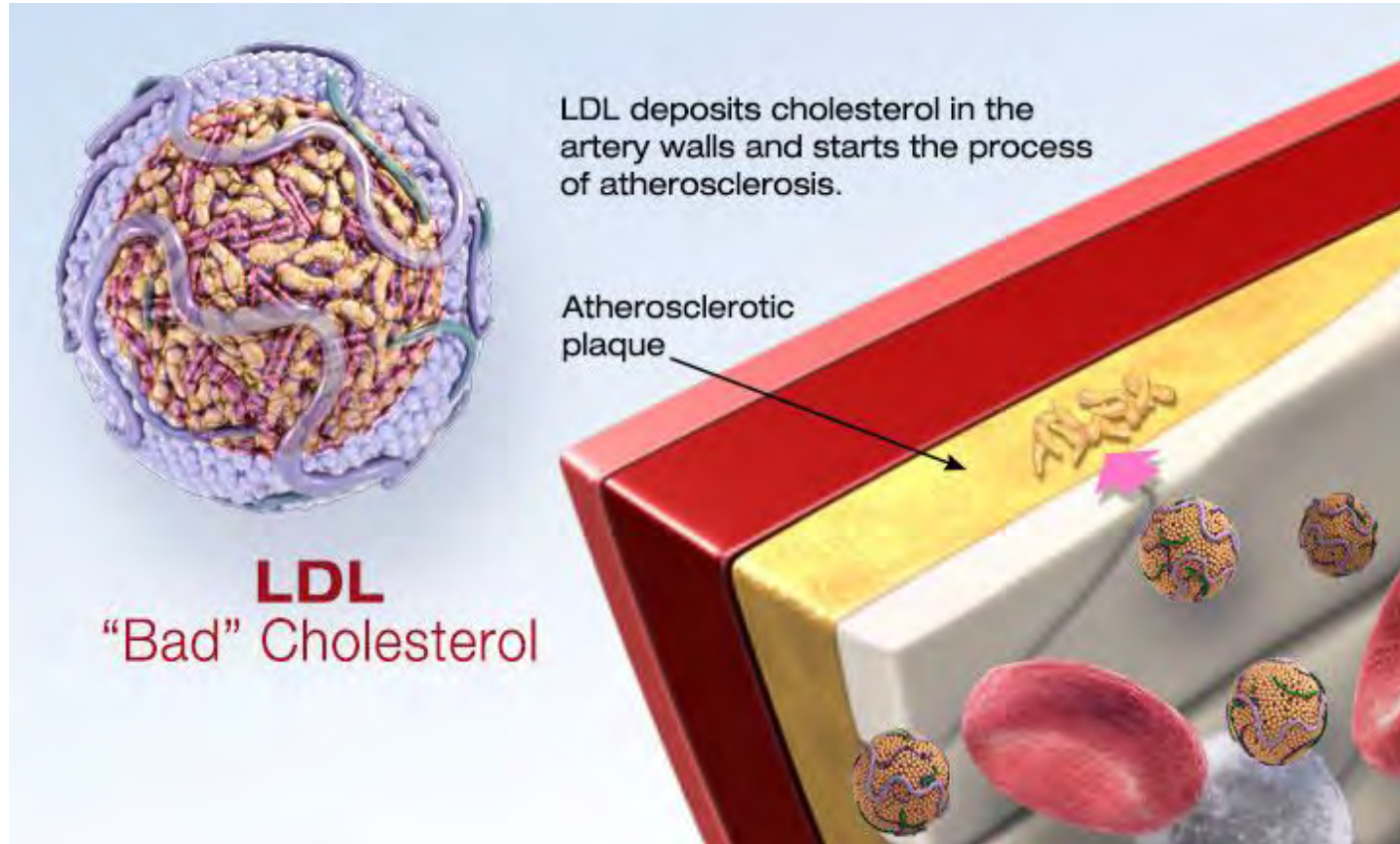


LEGEND: Fucosyltransferase 2 (*FUT2*); Transcobalamin 2 (*TCN2*); Serine Hydroxymethyl Transferase (*SHMT1*); Methylene Tetrahydrofolate Reductase (*MTHFR*); Methionine Synthase (*MTR*); Methionine Synthase Reductase (*MTRR*); Dihydrofolate (DHF); Tetrahydrofolate (THF); S-adenosylmethionine (SAMe); S-adenosylhomocysteine (SAH)



Lipoproteins

For the record, lipoproteins \neq cholesterol



TOCOTRIENOLS



Lipoproteins

So what's the skinny on these uber-fat taxi cabs?

- Apolipoprotein E (ApoE) is produced from your *APOE* gene
- ApoE is a component of the VLDL complex...the taxi cab responsible for packaging cholesterol and triglycerides and transporting them through the water-based bloodstream
- The *APOE* gene is a polymorphic gene with three major alleles defined by 2 well-studied SNPs

E2, E3 and E4

- The E4 allele produces an ApoE lipoprotein with preferential binding to VLDLs, resulting in dysregulation of LDL clearance, increased plasma LDL and increased risk of atherosclerosis

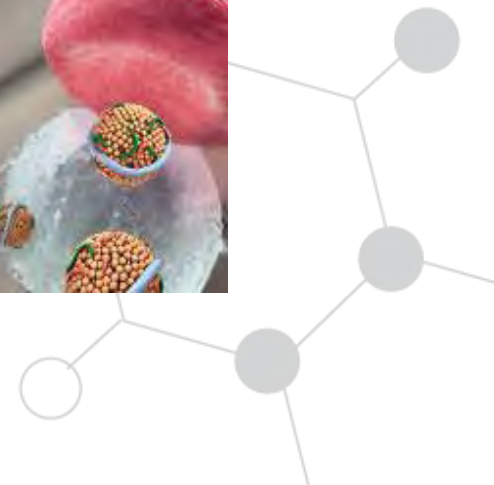
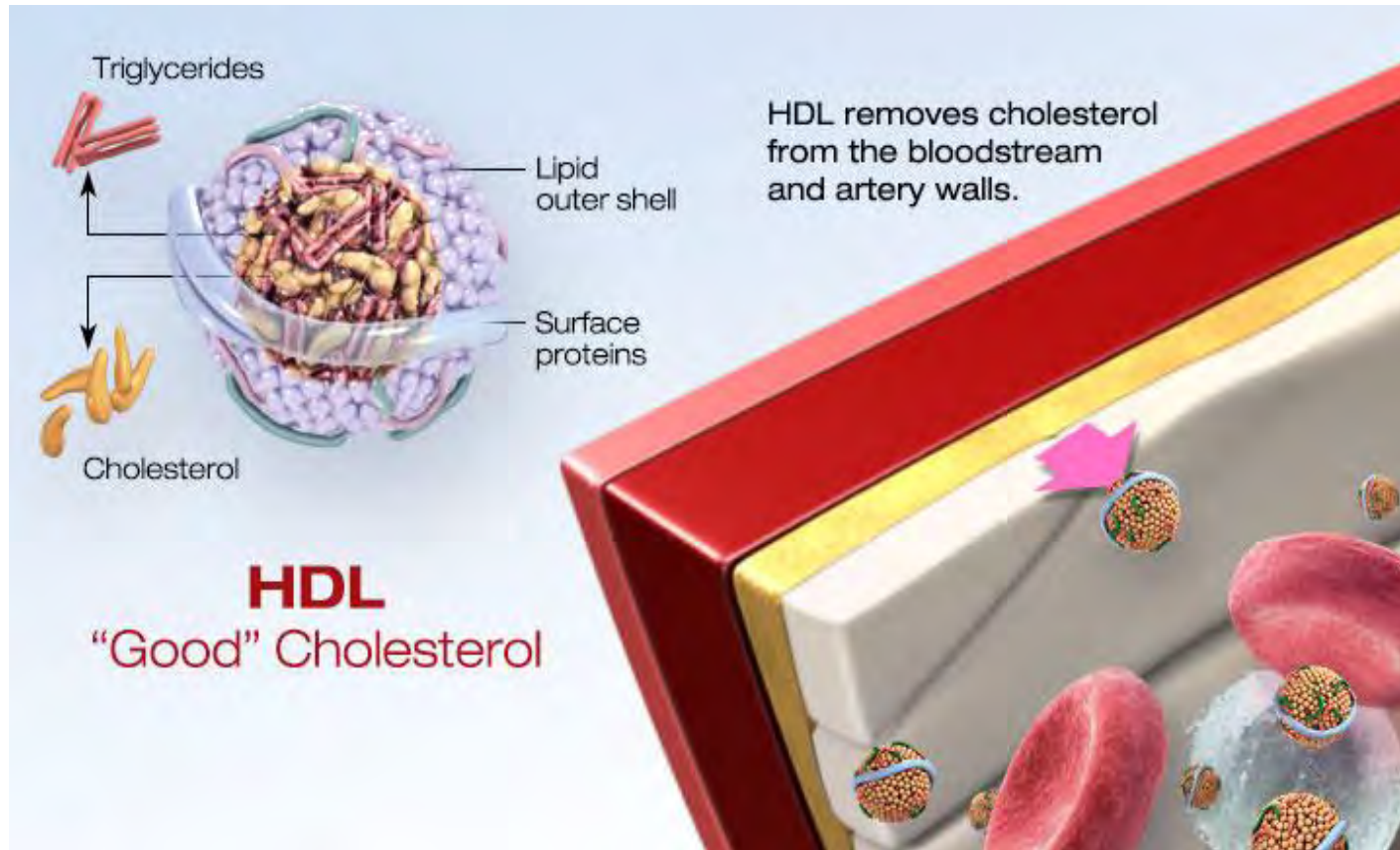


TOCOTRIENOLS



Lipoproteins

For the record, lipoproteins \neq cholesterol



Statins

Sometimes the cure can be worse than the illness

Statins are one of the most prescribed classes of drugs

Despite efficacy, several studies suggest that a significant percent of patients stop taking statins as prescribed

Many due to statin-induced myopathy

Even those who stay on the drug often exhibit deleterious lifestyle modifications (a sad cycle of reduced mobility, reduced diet, weight gain and depression)

The at-risk genotype of the *SLCO1B1* gene is thought to be responsible for as many as 60 percent of the myopathy cases in individuals taking high dose statin therapy (>80mg simvastatin/daily)

The *SLCO1B1* transporter is expressed predominantly on the basolateral membrane of hepatocytes and mediates intracellular hepatic transport of various substrates (including statins)



TOCOTRIENOLS



HUMILITY

